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Volume 2 Number 12 MARCH 1971




Wargaming Convention



THE INTERNATIONAL FEDERATION OF WARGAMING is sponsoring three wargaming conventions in the Midwest during the summer of 1971. The first of these will be at MT. PROSPECT, ILLINOIS on June 26th, the second in ST. LOUIS, MISSOURI on July 19th, and the third in LAKE GENEVA, WISCONSIN on August 21st and 22nd. "GENCON 4" in Lake Geneva will feature the Armored Fighting Vehicle in wargaming with a 48-player "PANZER-BLITZ" four round elimination tournament, an armor miniatures team elim-


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COVER: March 1941 the newly arrived German forces take the offensive in North Africa. This month's cover is a sketch done by a German combat artist of an event during Rommel first desert campaign.

The AFV-G2 is a magazine, published monthly, for Armor Enthusiasts, with the purpose of gathering and disseminating information about Armored Fighting Vehicles and their employment; to provide an opportunity for persons seriously interested in the History of Armored Fighting Vehicles, in the modeling of these AFV's and associated equipment, and in the playing of military Wargames utilizing miniature AFV's, to share ideas and items of mutual interest, and to promote an interest and awareness in the subject of AFV's.

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THE M-36 AND VARIANTS

by Jim Garrison

Before the M-10 Tank Destroyer, mounting the 3 inch gun, ever got into action, research started on mounting the 90mm anti-aircraft gun in it. Before the war started, artillery men realized the potential of the 90mm "triple threat gun", as it could deliver effective anti-aircraft, field artillery, and tank-destroyer fire wherever required. Studies of combining the M-10 and the 90mm gun began in October of 1942. By early in 1943, it was apparent that the M-10 turret was unsatisfactory for mounting the large 90mm gun. Next, the turret that was being developed for the new heavy tank series was tried. By using the basic turret mechanism, gun, and gun-mounts, traversing and elevating mechanism, sighting and rangefinding equipment, much work and time was saved that would have had to be expended if a new turret design was to be attempted. This project started in March of 1943, and the tests of the new vehicle, the T-71, were so successful that in November of that year a production order for 500 vehicles was given out.

The T-72 version was based on the Ford powered M-10A1; the U.S. Army preferred this powerplant to the twin GM diesels of the M-10; from the exterior, the chassis of the T-21 and the M-10 were identical. There were only minor interior changes to provide room for the longer 90mm shells; the auxiliary generator was moved to the engine compartment and some of the internal bracing was changed. The rounded turret of the T-71 had a partial turret basket. Seats, traversing with the turret, were provided for the crew therein - gunner, loader and commander. The main improvement of the T-71 turret over that of the M-10 was that internal counter weights were provided, giving a smoothly functioning turret with no angular rear overhang. The T-71 was standardized as the 90mm Gun Motor Carriage M-36 in June of 1944.

Production of the M-36 was rushed by taking many shortcuts, because it was the only American AFV that could easily knock out the German Tigers and Panthers. Between April and July of 1944, the Grand Blanc Tank arsenal finished the last 300 M-10A1's. In June of that year, the Massey-Harris Company started converting existing M-10A1's with the new gun and turret. After the invasion, the U.S. Army found that it needed the M-36 more than had been expected, and the above effort would not fill the required need. In October of that year, production started at the American Locomotive Company, and in the spring of the next year at the Montreal Locomotive Company. As fast as the above companies produced the new tank destroyer the U.S. Army in Europe cried for more.

What the invasion force wanted was the 90mm gun. They were not concerned with what chassis it was mounted on. So, the next step in order to increase the number of available M-36's getting to the troops was to mount the 90mm gun on another chassis. The vehicle picked was the M-4A3 tank; it was a logical choice because the M-36 was actually a M-4A3 with different armor angling. The mounting of the M-36 turret onto the Sherman was no more difficult then mounting it on the M-10, or the M-10A1; just a bit of internal re-arrangement. Room was made in the right sponson for the radio with the aerial just behind the right driving light, and the travel lock for the gun was moved from the glacis plate to the rear of the engine roof. These two features were the only real exterior differences between this new version, the M-36B1, and the M-4A3 chassis. The M-36B1 retained the hull machinegun mount of the Sherman series, and it was the only U.S. tank destroyer to be so equipped.

The M-10's that were replaced by M-36s were returned to the factories for rebuilding and modification. These were then fitted with the 90mm gun and turret, and they became the M-36B2 version. Most of the M-36B2's had their track width extended. This was accomplished by moving the suspension away from the hull sides and adding the "duckbill" track extendors to both sides of the track. This increased the track width from 16 to 24 inches, giving the vehicles so modified one of the best flotation factors during the war. This modification was not limited to tank destroyers, but could be found on all AFV's using the vertical volute suspension system. Another modification applied to most of the B2's, and some of the other marks of the M-36 series, was the fitting of an armored roof over the open turret. This kept shell fragments and unwanted grenades from entering the vehicle, but its most important function was keeping the weather off of the

turret crew.

The power of the M-3 90mm gun seems to be a matter of debate these days. Rather than becoming embroiled in the theories behind its ballistics, the following example is cited to show the effectiveness of the M-36 and its 90mm. The 702nd Tank Destroyer Battalion was equipped with M-36's in October of 1944, and was one of the first units to be so equipped. The following month, the battalion supported the three tank battalions of the 67th Armored Regiment in the tank battles of the Roer Plain. During this fighting the 702nd destroyed 15 "Panthers", while the medium tanks of the 67th could only claim 5 of the big "cats". This gave the Tank Destroyers a total of 27 German tanks and 6 Anti-Tank guns destroyed, against the loss of 8 M-36's. Finally the Allies had found a weapon able to deal with all of the German armor.

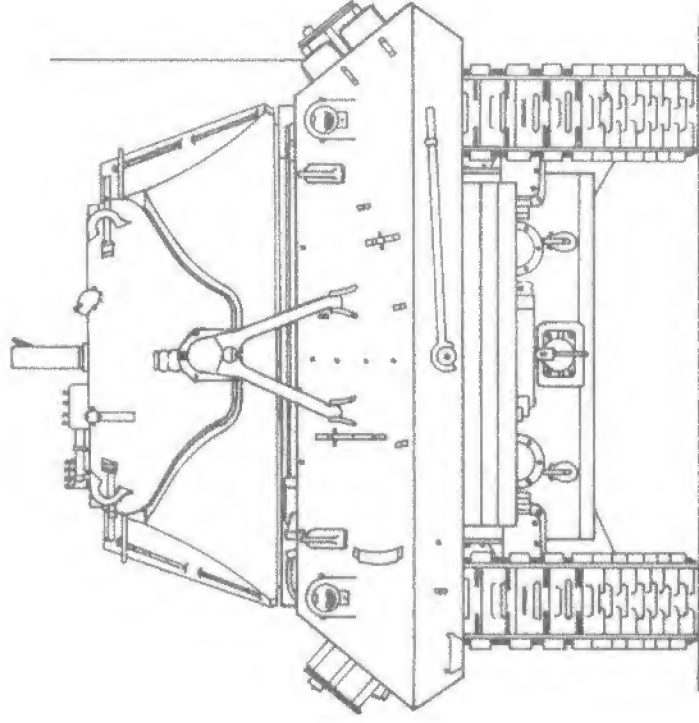
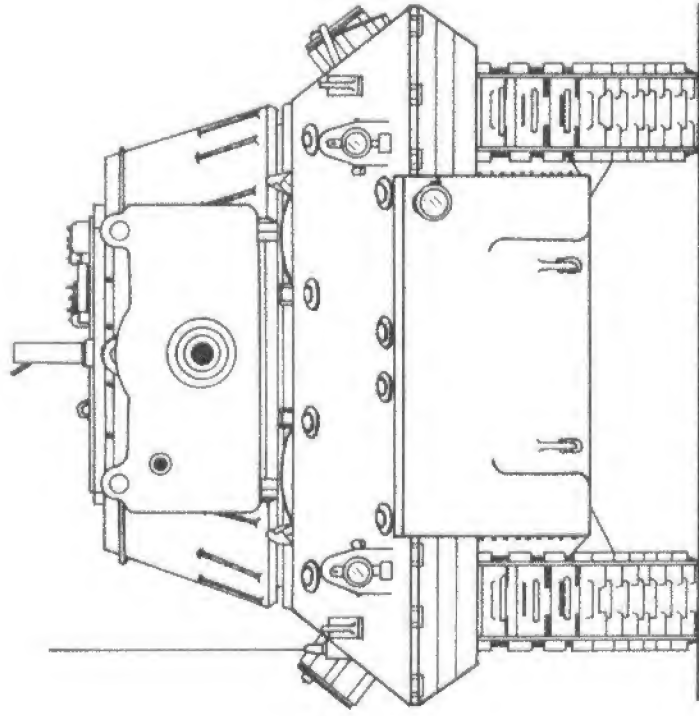
M-36 Series Technical Data

MODEL:	M-36	M-36B1	M-36B2
NUMBER PRODUCED:	1298*	187	237*
MANUFACTURER(S):	American Locomotive Montreal Locomotive Massey-Harris Grand Blanc	Grand Blanc	American Locomotive
CREW:	5	5	5
BATTLE WEIGHT:	61,000 lbs	68,000 lbs	66,000 lbs
LENGTH (Gun Forward)	294 inches	294.5 inches	294 inches
WIDTH:	120.75 inches	104.5 inches	120.75 inches
HEIGHT:	101.5 inches	104.5 inches	110 inches
GROUND CLEARANCE:	17 inches	17.5 inches	18.75 inches
TREAD WIDTH:	83 inches (ctr. to ctr.)	83 inches (ctr. to ctr.)	92 inches (ctr. to ctr.)
GROUND PRESSURE:	12.6 p. s. i.	14.1 p. s. i.	9.5 p. s. i.
ARMOR:	(Expressed in actual thickness in inches / angle with vertical / and basis)		
Hull Front, Upper:	1.5in. / at 55° / 3.75in.	2.5in. / at 47° / 4 in.	1.5in. / at 55° / 3.75in
Hull Front, Lower:	2 inches to 4 inches**	2 inches to 4 inches**	2 inches to 4 inches**
Hull Sides, Upper:	.75in. / at 38° / 1.375in.	1.5in. / vertical / 1.5in.	.75in. / at 38° / 1.375in.
Hull Sides, Lower:	1 inch / vertical / 1 inch	1.5in. / vertical / 1.5in.	.75in. / vertical / .75in.
Hull Decking:	.75 inch to .375 inch**	.75 inch**	.75 inch to .375 inch*
Hull Floor:	.5 inch / at 90° / .5 inch	1 inch to 1.5 inches**	.5 inch / at 90° / .5inch
	(All of the above made from rolled homogeneous armor plate.)		
Turret Front:	3 inches (rounded)	3 inches (rounded)	3 inches (rounded)
Turret Sides:	1.25 in. / at 5° / 1.25 in.	1.25in. / at 5° / 1.25in.	1.25in. / at 5° / 1.25in.
Turret Rear:	1.75 inches to 5 inches**	1.75 inches to 5 inches**	1.75inches to 5 inches**
	(The above sections made from cast and rolled homogeneous armor)		
ARMAMENT:			
M-3 90mm Gun:	1	1	1
M-2 .50cal. M. G.:	1 (Heavy Barrel)	1 (Heavy Barrel)	1 (Heavy Barrel)
M-1919A4 .30cal. M G	None	1 (Ball Mount, Bow M. G.)	None
M-1A2 .30cal. Carbine:	5	5	5
AMMUNITION STOWAGE:			
90mm:	47 rounds	47 rounds	47 rounds
.50 cal. (Belted):	1,050 rounds	1,000 rounds	1,000 rounds
.30 cal. (Belted):	None	2,000 rounds	None
.30 cal. (Clipped):	450 rounds	450 rounds	450 rounds
Hand Grenade, Mk.II:	6	6	6
Hand Grenade, M-8:	6 (Smoke)	6 (Smoke)	6 (Smoke)
Flare, Signal:	18	None	18

	M-36	M-36B1	M-36B2
FIRE CONTROL:			
Direct Telescopes:	M-71c, M-76d, M-76f, or M-83c	M-71c, M-76f, or M-83c	M-71c, M-76f, or M-83c
Panoramic Telescope:	M-12	M-12	M-12
INDIRECT FIRE CONTROL:			
Elevation Quadrant:	M-9	M-9	M-9
Gunner's Quadrant:	M-1	M-1	M-1
Azimuth Indicator:	M-18	M-20	M-18 or M-20
VISION FACILITIES:***			
Periscopes:	3 (M-6, M-13, M-13b1)	4 (M-6, M-13, M-13b1)	3 (M-6, M-13, M-13b1)
Binoculars, M-3:	2	2	2
TRACKS:****			
Type: Rubber:	T-48 or T-51	T-48 or T-51	T-48 or T-51
Steel:	T-49 or T-54E1	T-54E1	T-54E1
Rubber-backed:	T-74	T-74	T-74
Width of Contact:	16 and 9/16th inches	16 and 9/16th inches	23 and 11/16th inches
Length of Contact:	147 inches	147 inches	147 inches
Links per Track:	79	79	79
SUSPENSION:			
Type:	Vertical Volute	Vertical Volute	Vertical Volute
Wheel Size:	20x9	20x9	20x9
Wheels per Vehicle:	12	12	12
Wheel construction:	Disc or Spoke Rubber tired wheels on all three variants.		
ENGINE:			
Type:	Gasoline	Gasoline	Diesel
Manufacturer:	Ford	Ford	General Motors
Model:	GAA 111	GAA 111	6046 or 60460
Cylinders:	V-8	V-8	2x6, V-12
Displacement:	1,100 cubic inches	1,100 cubic inches	850 cubic inches
Governed Speed:	2,600 RPM	2,600 RPM	2,100 RPM
Brake Horsepower:	450hp @ 2,600 RPM	450hp @ 2,600 RPM	375hp @ 2,100 RPM
Ignition:	Magneto	Magneto	Compression
PERFORMANCE:			
Speed (Governed):	26 MPH	26 MPH	25 MPH
Cruising Range:	110 Miles	115 Miles	115 Miles
Turning Radius:	31 feet	31 feet	31 feet
Fording Depth:	36 inches (Unprepared)	36 inches (Unprepared)	42 inches (Unprepared)
Maximum Ditch:	89 inches	90 inches	90 inches
Maximum Grade:	60 percent	60 percent	50 percent
Vertical Obstacle:	18 inches	24 inches	19 inches
Towing Capacity:	10,000 lbs. (gross)	10,000 lbs. (gross)	10,000 lbs. (gross)

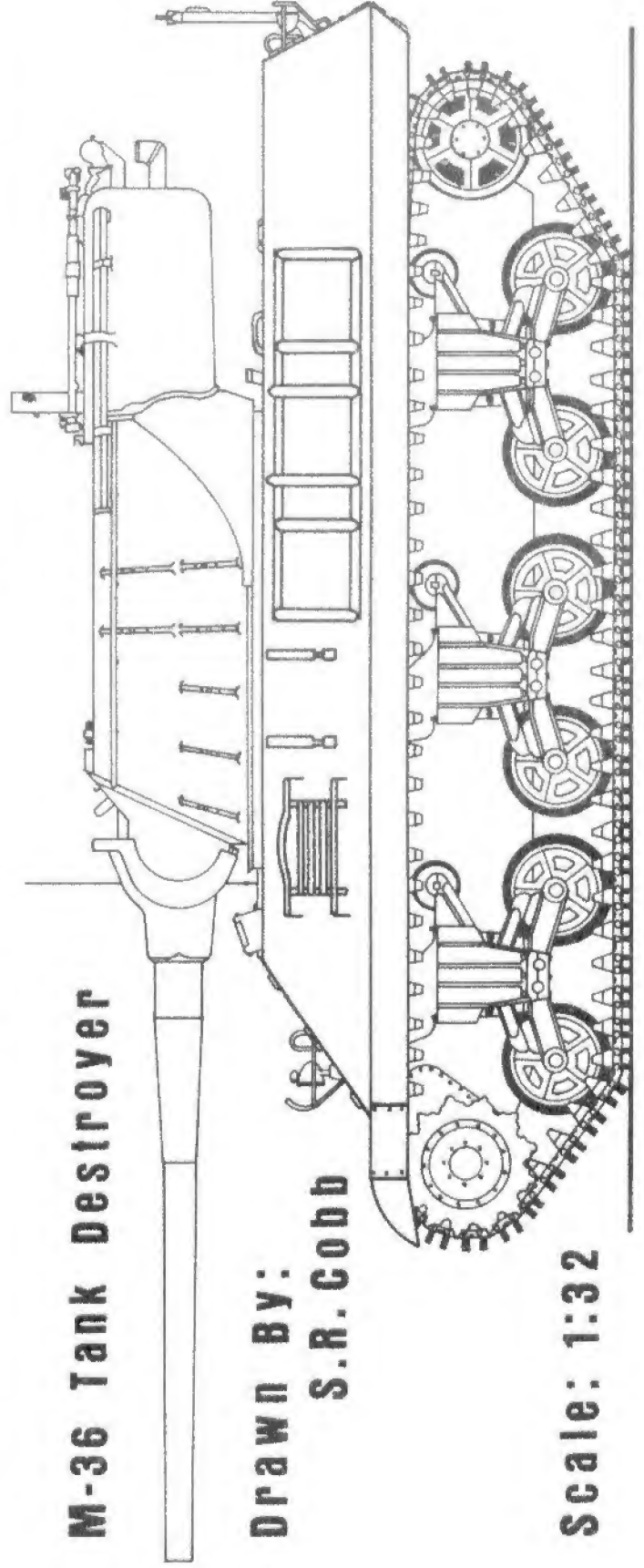
NOTES:

- * There seems to be considerable disagreement as to the number of M-36 variants actually produced. Some figures range as high as 1,795 M-36's and a further production of 1,210 M-36B2 units. However, the production figures given above for both models are correct through June 1945. Any conversions made after that time would be additional; also, if any conversions were made by other than the normal production organizations - i. e. field conversions - they would not be shown in the above figures.
- ** Thickness and angle for these plates varied due to their configuration. Figures given above are for the minimum and maximum actual thicknesses.
- *** Direct vision for the Commander, Gunner, and Loader was the open turret roof. In the M-36B2 there was enough open space between the top of the turret sides and the armored roof to permit direct vision for the turret crew.
- **** The Rubber Track T-48, Steel Tracks T-49 and T-54E1, and the Rubber-backed Steel Track T-74 were all interchangeable.



M-36 Tank Destroyer

Drawn BY:
S.R. Cobb



Scale: 1:32

Color 'n' Camouflage

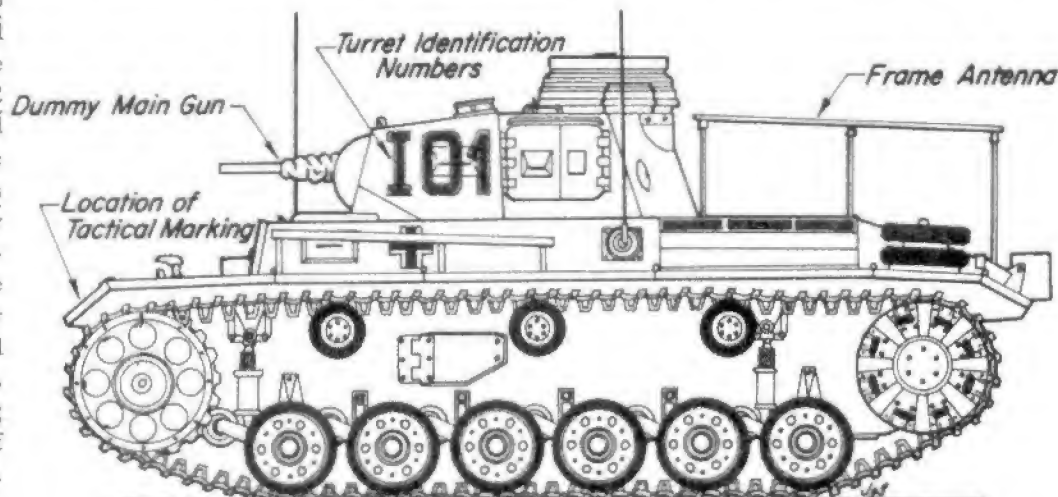
The Panzer Befehlswagen III in North Africa

by Jim Steuard

The basic armored fighting vehicle of the Deutsches-Afrika-Korps (D.A.K.) was the famed Panzerkampfwagen III., for it was used in far greater quantities than any other axis armored vehicle. Even though outgunned at the end of the campaign in North Africa by the American 75mm gun, the Panzer III. was considered by many Allied experts as the best German armor in the desert. The original 3.7cm KwK L/45 in the early versions had been replaced by the more powerful 5cm KwK39 L/42 in the Ausführung F. and later variants carried the even more powerful 5cm KwK L/60 gun. This later gun was the flattest shooting gun available to the D.A.K., and its accuracy was even highly respected by the British Eighth Army.

Instead of featuring the fighting versions of the Panzerkampfwagen III. in this month's "Color 'n' Camouflage", we are instead illustrating the markings and paint used on a Command Panzer III., a "kissing-cousin" of the standard tank. The "command" Panzer-Befehlswagen III. was used by all command echelons of the D.A.K., from Battalion (Abteilung) through Corps (Korps). It was a vehicle which closely resembled its fighting brothers, but provided map table space and greatly increased communication capabilities for commanders, so that they could better control and coordinate their units from the protection of an armored vehicle.

Our vehicle for this article was a Panzer-Befehlswagen III., Ausführung E. that was assigned to the headquarters of the I. Abteilung of Panzer-Regiment 5. of the Afrikakorps's 21. Panzer-Division. It was used during the period 19 December 1941 through 21 June 1942, when it was involved in the capture of Tobruk. Being typical of German "command" tanks, the Pz. Bef. Wg. III. carried no main armament; the interior armament space was absorbed by the map table and extra radio equipment. The original gun was replaced with a wooden dummy,



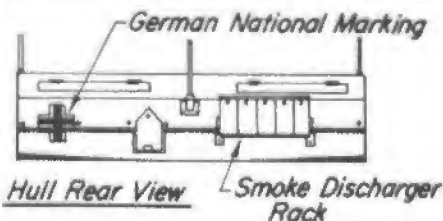
Side View - Panzer Befehlswagen III., Ausführung E



D.A.K. Palm Tree Insignia

antennas; these consisted of a large "frame" style antenna fastened to the rear deck behind the turret, and two vertical whip antennas. One of these "whips" was on the right of the hull (identical to the normal "tank" version) and the other antenna was on the left side of the hull, folding forward when not in use. The typical large storage bin at the rear of the turret was not fitted on the "command" tank because of the large frame antenna. (Close attention to photos will show the correct antenna fittings for the modeler.)

Our particular Panzer-Befehlswagen III. was painted in an overall scheme of D.A.K. Sand Yellow, as illustrated in our paint chip. This paint was referred to by the D.A.K. as Sahara Gelb (or Sahara Yellow). This paint finish (and the markings) appear to be badly weathered; the desert wind blown sand often removed paint as



soon as it was applied. Our Panzer Befehlswagen III, was the tank used by Hauptmann Martin, the Battalion Commander of the I. Abteilung, Panzer-Regiment 5, and it was specially identified by the turret identification numbers "101". These numbers appeared on both sides of the turret, forward of the escape doors. The numbers were painted in red, with a thin white outline (For the red color, refer to "AFV-G2", Vol. 2, No. 3). The numbers were approximately 15" in height, with the width of each stroke (red and white outlines) being 3", as illustrated. The German National Marking, a black and white Balkan cross, was painted on the hull on both sides, directly below the turret numbers. This cross was approximately 10" square. The same cross appeared on the hull rear, as shown in the small rear view.

Almost all vehicles of the D.A.K. were identified by the proud "Afrikkakorps Palm Tree", and our Panzer Befehlswagen III, carried this insignia on the right side of the hull front armor plate, next to the empty ball mount for the hull machine gun (which was not used on the "command" versions). The "Palm Tree" was painted in white, approximately 12" in height. It was surrounded by a patch of darker gray/blue paint (evidently the original vehicle color when it arrived in North Africa). It was usual for D.A.K. vehicles to arrive with an overall paint of the standard dark gray/blue; they were almost immediately repainted by rear area workshops.

Vehicles of the 21. Panzer-Division were readily identified by the divisional tactical marking. This insignia consisted of a white painted capital "D", with a horizontal bisecting line, as shown in our small sketch. This marking was approximately 4" high, and it appeared on the left front fender as shown, on the hinging "flap" section, so that it was visible to the front.



Revived by the arrival at Tripoli of a further 55 tanks on January 5, 1942, the Deutsches-Afrika-Korps drove forward on the 21st, and attacked by green troops of the British 1st Armoured-Division. I. Abteilung, Panzer-Regiment 5 now refurbished with new tanks, engaged the British 2nd Armoured Brigade near Antelat, and drove them north-east in a running battle. Confused by this "impossible" occurrence, the British evacuated the Bulge of Cyrenaica and fell back to their Gazala positions. For the remainder of the spring, I. Abteilung, Panzer-Regiment 5 continued to re-equip and prepare for the coming

offensive to retake Tobruk.

On March 27, 1942, 21. Panzer-Division, traveling far to the south of the British positions at Bir Hacheim, swung north towards the coast, and proceeded to fight its way through a succession of British armoured formations. Here, the new American tanks - the Grants - were first encountered, and as Panzer-Regiment 5, deployed to engage their old enemies of the 7th Armoured Division, the deadly effect of the Grant's 75mm gun soon became apparent. Hauptmann Martin, the I. Abteilung CO had his Panzer Befehlswagen III hit, and he was killed, as the Abteilung engaged "A" and "B" Squadrons of the 8th Hussars. The damage to the command tank was repaired and the vehicle was soon moving forward again. Many of the Abteilung's Panzer III's shared the fate of their commander.

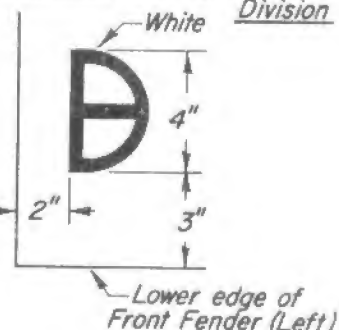
For the next three weeks, the battle raged around the British minefields and the rock cairns south of Tobruk. Dashing here and there across the desert, the troops of both sides fought themselves into exhaustion. Then, the east drive into the Port of Tobruk - the prize that had eluded the Deutsches-Afrika-Korps for over a year. At 1900 hours on June 21, 1942, I. Abteilung, Panzer-Regiment 5 rolled down the escarpment past burning Allied dumps, and on into the city, with our Panzer Befehlswagen III in the van.

DAK SAND YELLOW

6pts Floquil RR83
Mud
1pt Floquil F85
Antique White



Tactical Marking- 21. Panzer-Division



EDITORIAL NOTE: In last month's issue of the AFV - G2 a typesetting error resulted in the omission of a line from Carl Weaver's article on the Swedish "Tank S". The sentence should read:

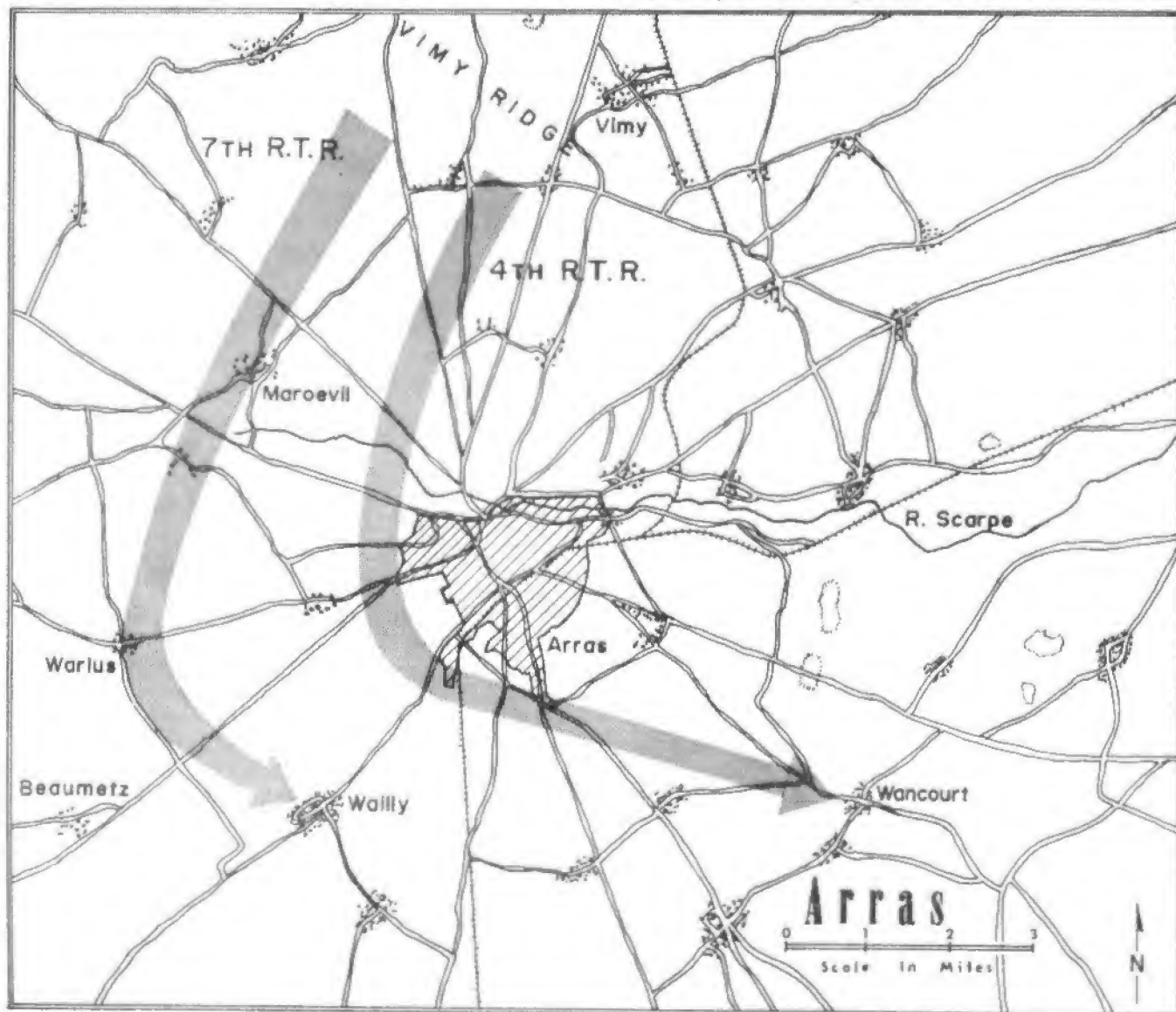
"Traverse of the gun is accomplished by the use of 'neutral steer' - that is having one track going forward and the other going in reverse."

STOP THRUST: ARRAS 1940

by Bill Platz

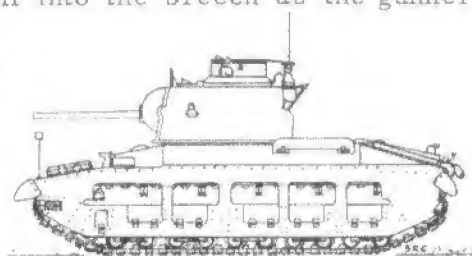
For the British, it was Balaklava all over again - a wild charge against hopeless odds while "all the world wondered". The plan had called for a simultaneous attack on both the northern and southern flanks of the German "Panzer Corridor" that had reached the English Channel the day before, May 20, 1940. However, in the south the French attack never materialized; and in the north other commitments severely limited the size of the assault force. The British Expeditionary Force (B.E.F.) contingent, consisting of two battalions of the Royal Tank Regiment (4th and 7th RTR) with two infantry battalions (6th and 8th Bns, Durham Light Infantry) and some supporting artillery, assembled in the Vimy Ridge area north of the city of Arras on the morning of May 21st. On their right were the remnants of the French 3rd Light Mechanized Division with about 60 H35 and S35 tanks. The British were ordered to advance southwards in two groups along parallel tracks about three miles apart; however, the infantry units were delayed. At 1400, the tanks began their attack alone and without the promised air support. The French would cover the western flank of the advance.

The tanks were named "Demon", "Dreadnought", and "Destroyer" - Infantry Tanks Marks I and II - but their appearance reminded London newspaper readers of the awkward cartoon duck named "Matilda", so MATILDAS they became. With a maximum speed of only 8 mph, it would be an hour before they reached the start line from the assembly area, and from there it was a further



10 miles to the first objective - the line of the River Cojeul. Yet before 1500 the 49 tanks of the 4th RTR were engaging elements of the 7th Panzer Division, commanded by the famous General Erwin Rommel.

"Achtung Panzer!" The crew of the 3.7 PAK went into action with the speed that only a well practiced battle drill could produce. The loader rammed a shell into the breech as the gunner aligned his sights on the clumsy looking object approaching across the rolling fields. "Fuer!" A report, another round was rammed home, ready to follow the first. Still the target advanced. A second and third round barked out and now the gunner could clearly see the white oval with a large black "D" that marked the front plate of the oncoming tank. Machine gun bullets splattered against the gun shield. The loader fell and another took his place. A fourth shot hit squarely and ricocheted off in a red arc, the fifth hit the wooden storage box and a cloud of grey smoke rose from the front of the target but still it came on - the muzzle flash from the machine guns clearly seen through the smoke. At twenty meters, the gunner fired his last shot, watched it glance off the turret armor, and then dove to the side as the green and brown behemoth crushed the impudent gun beneath its tracks. Panzerjäger Abteilung 42, had met its first "Matilda".



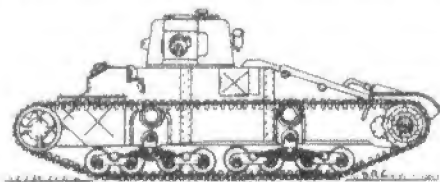
INFANTRY TANK MK II

"MATILDA"

4TH BATT. ROYAL TANK REG.

Further to the west, the 7th Royal Tanks were also pushing forward, smashing AT guns as they went. One Matilda took fourteen 3.7cm hits without sustaining any damage. The German armor, Panzer Regiment 25., had passed ahead of the British advance and were now several miles to the westward. The German Division Commander had come back to urge the infantry units forward when the British attack started. As the Matildas broke through, Rommel was engaged in the sighting of the heavy field pieces of Artillerie Regiment 78., at a range of 1000 yards. It was now nearly 1600, and the 7th RTR had reached its pivot point at the village of Wailly, when the Battalion CO was killed as he organized the assault on the town. At the same time, Lt. Col. Fitzmaurice, CO of the 4th RTR, was also killed when his Mk VI Light Command Tank was hit by a 105mm artillery round. Yet the advance continued.

Desperate, the defenders lowered the barrels of their 88mm Flak guns to fire at the advancing armor, and this accounted for eight of the attackers; but even the 88's were overrun. One of the Flak guns fell to Major John King and Sergeant B. Doyle of the 7th Royal Tanks. The major, in a



INFANTRY TANK MK I

"MATILDA"

4TH BATTALLION ROYAL TANK REGIMENT

Matilda II, had been hit by an artillery round which had jammed the turret and injured the gunner but had failed to penetrate the thick armor. Continuing the advance, he came upon the 88 positioned on the opposite side of a sunken road and, before the Germans could traverse, the Matilda took cover behind the high bank. Major King then maneuvered his vehicle so that the machine gun in the turret could bear and opened fire. At the same time, Doyle's tank arrived and dispatched the distracted gun crew. Both tanks then pushed on.

The British Infantry, after a late start, had now caught up with the armor; but they had taken heavy casualties from non-stop Stuka attacks and German artillery. By 1830, it was obvious that there was not enough infantry support to reach the final objective, and the brigade began to consolidate their position on the line Beaurains-Agny. It was after midnight by the time all the tanks had been rallied.

For the Germans, it had been a shock out of all proportion to the forces involved. Rommel's report stated: "Between 1530 and 1900, hours of heavy fighting took place against hundreds of enemy tanks and following infantry." At the time of the attack, the 1st Tank Brigade strength consisted of 58 Matilda I, 16 Matilda II, and 14 Mk. VI Light Tanks. The alarm spread through the German High Command, who were already nervous about their easy successes. It is impossible to determine the effect of Arras on their decision not to press home the attack on Dunkirk, but it is likewise impossible to deny that the events of May 21st influenced that decision.

CLASSIFIED AD: An illustrated list of "Armor on Stamps" is available as of July 1, 1971, for an 8¢ stamp (overseas 1 I. R. C.) deductible on a future order. Write Harold Scharff, Box 774, New York, New York, 10005.

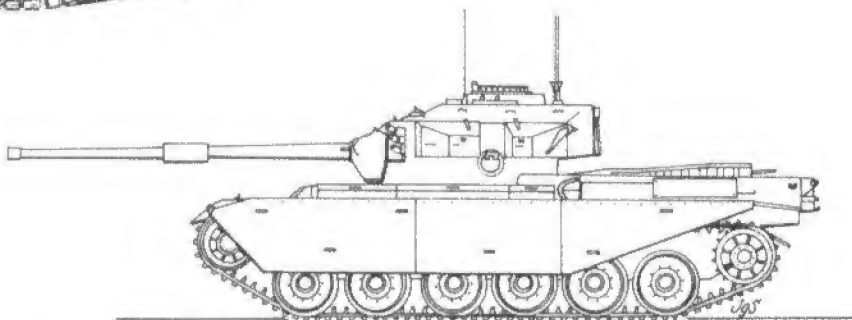


ARMOR 6:2

Current Data on the World's Armored Forces.

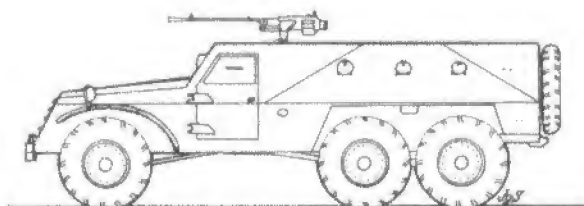
by J. C. Johns

Australia and New Zealand:
The Australian and New Zealand military forces in South Viet Nam are using Centurions, Mark V with 83.4mm guns and Centurion Mark II Armoured Recovery Vehicles with 50 cal. machine gun mounted on top.



Australian Mark V Centurion Tank

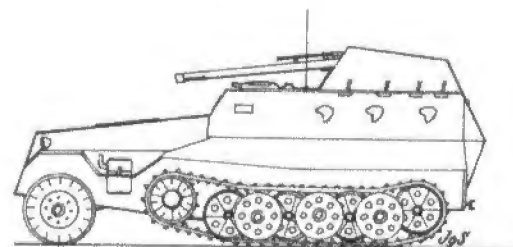
Cambodia: In the new fighting, the Cambodian Army has been seen with French made AMX-13 Light Tanks with a 90mm gun (given to them through the French Military Mission in the late 1960's); old U.S. made M-3A1 Armored Scout Cars with 50 cal. machine guns; M-8 Armored Cars with 37mm gun's; and also Russian made BTR-152 Armored Cars.



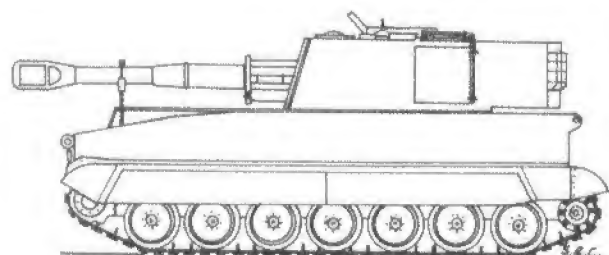
Cambodian (ex-Soviet) BTR-152

Czechoslovakia: The Czech OT-810 Halftrack (which is a copy of the German WW II Sd. Kfz 251/1 Halftrack) is now fitted with a Czech designed and manufactured 106mm Recoilless Gun, mounted on the top of the vehicle at the rear with fold-down armored shields.

France: A new AMX-30 Armored Recovery Vehicle has been released. It is designed as a support vehicle for French Armor Battalions. The vehicle is equipped with a hydraulic dozer blade, a 35 ton winch, and a 10 ton crane, and can carry an AMX-30 spare engine on its rear hull.



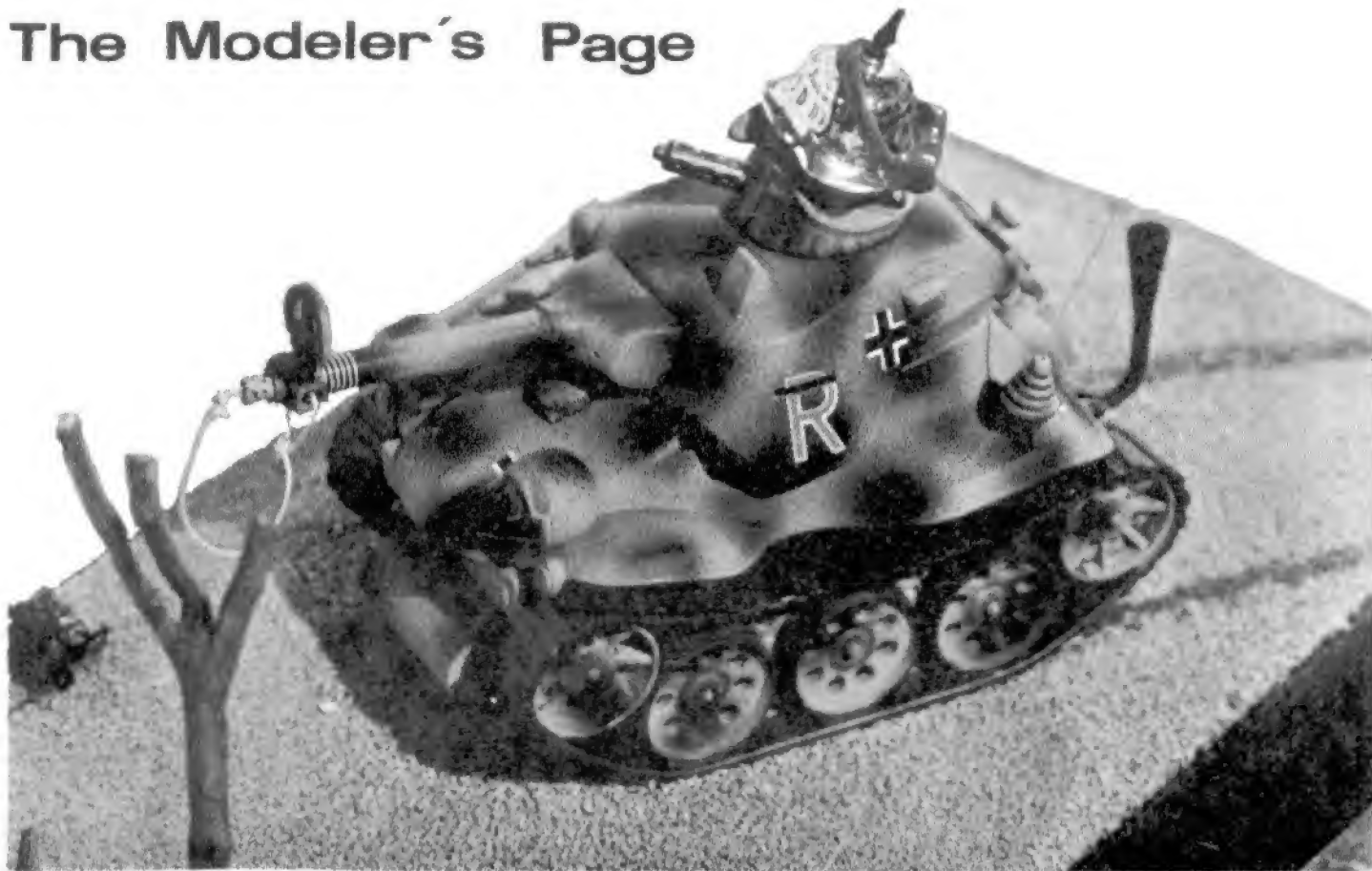
Czechoslovak OT-810 Halftrack



Israeli M-109 Armored SP Howitzer

Israel: The United States has agreed to provide Israel with approximately 180 tanks as part of almost 500 million dollars in military assistance: a combination of M-60 main battle tanks with 105mm guns, and M-48 Patton tanks with 90mm guns, some of which are new and some used. Also to be supplied are 24 new M-109 Self Propelled Armored Howitzers. M-109's and some M-113 Armored Personnel Carriers were recently displayed in Israel to the public (during the Independence Day Celebration).

The Modeler's Page




After the photos in our January issue, being photo editor for this magazine is somewhat like being elected captain of the Titanic. However, as Rasputin said after he had been poisoned and shot six times, "I don't intend to let these little things get me down."

The model this month comes from the Modeler's Show held at the Pomona fairgrounds on March 7. A number of tank models and dioramas were in evidence and I hope to cover them in later "Modeler's Pages." The model illustrated is the Panzer Kampfwagen Mk VII-1/2. This particular panzer represents the epitomy of Nazi German tank design. Notice the Christie suspension system and the Porsche designed body. The body design incorporates angled armor plate to better deflect enemy AT rounds and an occasional spitwad. The gun tube is the same 3-piece design used on the 8.8mm gun. The major differences are the gunsight attached to the muzzle break, (which uniquely incorporates the symbol of the 3rd Panzer Division), and the bore evacuator. The bore evacuator is of the lateral transverse type. This particular model is the BE36A, which in addition to evacuating the bore can also be used to store 3 liters of Löwenbrau in case the Untersturmführer finds all the other hiding places. What appears to be an antenna on the hull is actually a detachable straw, which the gunner inserts through the breech assembly to get to the bore evacuator.

The model is Revell's Rank Tank, the track and suspension system is from Rommel's Rod. This conversion was well worth the effort. The model may be seen at The Hobby Bench, 350 West Foothill Blvd., Glendora, California.

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"The Maus That Almost Roared"

by S. R. Cobb

The Maus (formerly Mammut) was conceived by a verbal contract given to Dr. Porsche by Hitler in Berlin on June 8, 1942, to produce a tank in the 150 ton weight class, having an armament of a 12.8cm cannon. Dr. Porsche accepted the contract under the code name 'Panzerkampfwagen Maus' and proceeded into the development stage. Some of Porsche design features were included in the chassis design, which consisted of a torsion bar suspension assembly and an electric drive.

Work on the first prototype began at the Alkett factory on the 1st of August 1943, and the first test run took place on December 23, 1943 with a massive weight in place of the turret. Further trials took place at Boblingen until May 1944, when, on receipt of the turret and armament from Krupp, final assembly was begun and completed by the 9th of June. During this time a second prototype had been completed and had been delivered to Boblingen on March 20, 1944. After this, however, work had to be halted due to the war situation; both prototypes were sent to Kummersdorf in October or November where they were blown up shortly before Kummersdorf was occupied by the advancing Russian armies.

Although only two prototypes were completed, a total of ten prototypes were in the planning, and 150 units were intended eventually to be put into service. This number seems a bit extravagant since the Maus was built from parts fabricated all over Germany. The electrical equipment came from Siemens-Schuckert, the engine was designed by Daimler-Benz, the hull, turret armor, and armament came from Krupp, the tracks came from Altmarkische Kettenfabrik and the final assembly was carried out at Alkett.

When Dr. Porsche accepted the contract for the Maus, the requirements were for a 150 ton tank with a 12.8cm cannon with a 96cm recoil and 150cm length fixed ammunition. For this, a 300cm diameter turret ring was necessary. After all the requirements were met, the tank weighed 188 tons and mounted a 15cm cannon instead of the 12.8cm originally planned.

The tank is massive to say the least; being 366cm high. The turret alone weighed 50 tons; it had a cast front with the side and rear built of rolled steel plates. The tank was powered by a V-12 Daimler-Benz MB509 gasoline engine in the first prototype, and a MB507 water-cooled diesel engine in the second prototype. The track suspension system consisted of 24 identical, double road-wheels, which were combined in 12 spring bogies assemblies in place of the torsion bar bogies originally planned. There were six of these assemblies per side. The road wheels were like those used on the Tiger II; of the steel tire type with rubber insets. The main armament consisted of the 15cm KwK 44 L/38 with a co-axially mounted semi-automatic 7.5cm KwK 44 L/36.

Since the vehicle was far too heavy to cross bridges, it was intended that the vehicle would be able to be submersible for crossing rivers. It was planned to be submersible up to a depth of eight meters. To do this the vehicle would be fitted with an air trucking device which acted as an air intake to cool the electric motors for running under water. The electric motors were powered by a cable and generator from a vehicle standing on land, which laid out cable as the Maus moved across the river.

The tactical value of such a vehicle would have been questionable since it's mobility was greatly impaired by such things as: excessive ground weight, slow speed, being 20 kph on the road, and armor that was vulnerable to hollow-charge projectiles. Recovery of damaged vehicles was virtually impossible, since the vehicle needed sophisticated hydraulic jacks to lift it, and even then it needed ditches to be dug beside the unit to allow for the application of the repair equipment. This is providing the repair crew had enough time for this. Then they would have to make the repairs,

often taking days just to make simple repairs on the track system alone. Since the crew would never have this time under battle conditions, once the tank needed repairs, there it would probably stay.

Drawings this month are of the Maus mounting the KwK 44 L/38 main armament with co-axial 7.5cm KwK 44 L/36.

TECHNICAL DATA: "MAUS"

TRACK:

Width...110cm
Length in Contact with ground...588cm
Ground Pressure...1 kg/45 sq. cm

CREW: 5

WEIGHT:

Loaded...188 tons

SUSPENSION:

Type...Independent, paired road wheel assemblies
Number of road wheels...24

DIMENSIONS:

Length Over-all.....1008cm
Length Without Barrel... 903cm
Height..... 366cm
Axis Height of Gun..... 279cm
Width Over-all..... 367cm
Ground Clearance..... 54cm
Turret Ring Diameter... 300cm
Wheel Base 233cm

ARMAMENT:

Main gun...15cm KwK 44 L/38
Co-axial Gun...7.5cm KwK 44 L/36
Auxiliary M.G.'s...one MG34 or MG42 in the turret

PERFORMANCE:

Maximum Speed (on road)...20kph.
Range (on road)...190 km.
Range (cross country)...68 km.
Gap Crossing Ability...450cm
Vertical Climb...72cm
Gradients...30°
Steering Ratio...1:2.52
Wading Depth(w/out wading gear). 200cm
Wading Depth(with wading gear)...800cm

AMMUNITION STORAGE:

Main Armament...50 rounds
Secondary Armament...200 rounds
M.G. Ammunition...1000

POWER TRAIN:

Engine:
Type...V-12 Water Cooled
Make..Daimler-Benz
Model..MB509 (Gas) and MB507 (Diesel)
Horse Power...1200 @ 2400 RPM

Transmission:

Type...2 Electric Motors, Rear Drive
Gears..2 Forward, 2 Reverse

Steering: Electric

Turret Traverse: Electric

ARMOR:

Hull:
Front...200mm/60°
Driver's Plate...200mm/35°
Side Armor @ Bottom..80mm+100mm/90°
Side Armor @ Top...180mm/90°
Rear...160mm-165mm/50°-60°
Hull Roof...100mm/0°
Hull Floor...40mm/0°

Turret:

Front...240mm
Side....200mm/60°
Rear...200mm/60°
Top.... 60mm

FUEL CAPACITY:

4800 Litres

FROM THE CIRCULATION DIRECTOR: The following three- or four-view 1/32 scale drawings are available at a cost of 15¢ per copy.

British:

Marmon-Herrington Mk. II
A13 Cruiser Tank Mk. IIA

German:

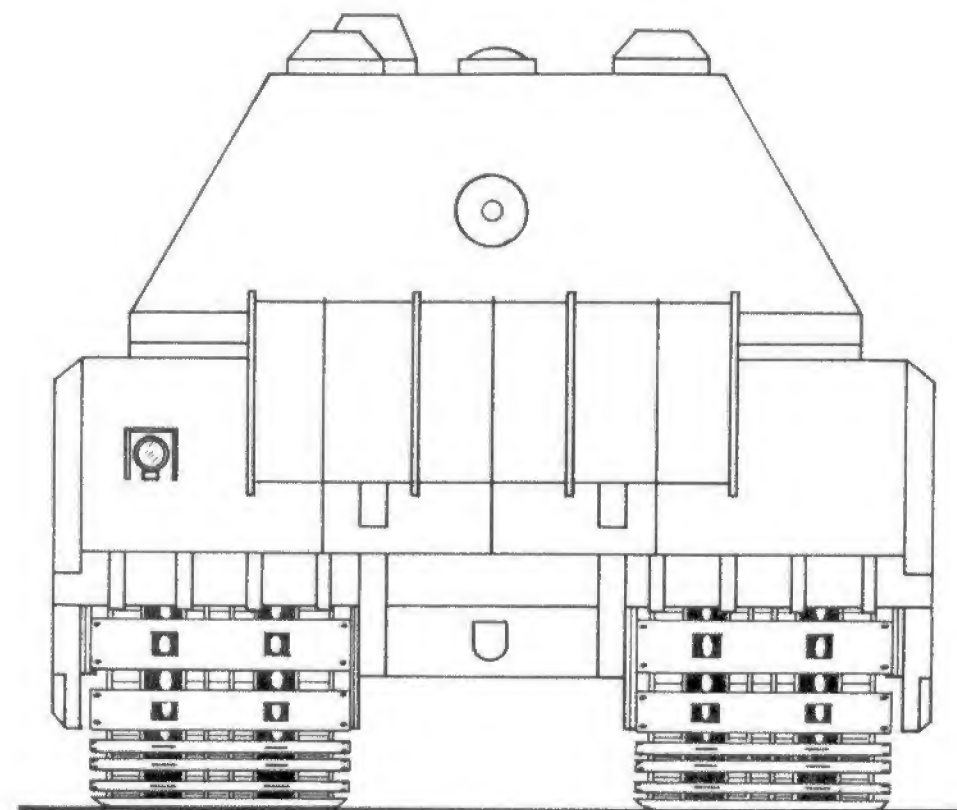
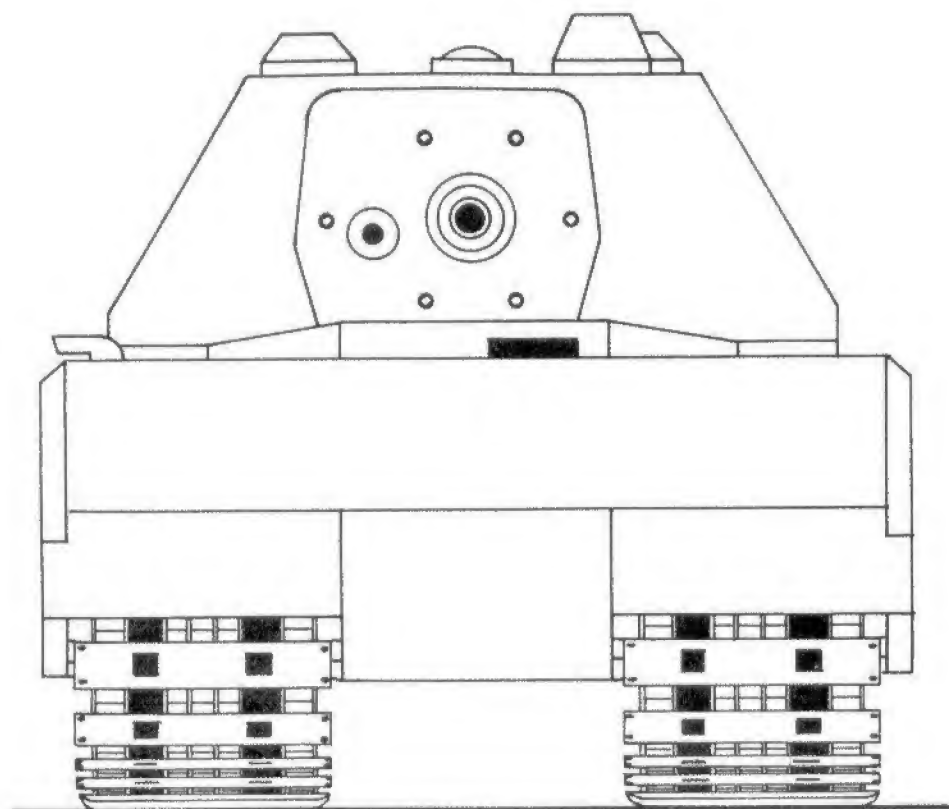
Hanomag Sd.Kfz. 251/9
Panzerjäger 38(t) Marder III

United States:

M4A3E2 "Jumbo" Sherman
M3 "Stuart" Light Tank
M10 Tank Destroyer

Soviet:

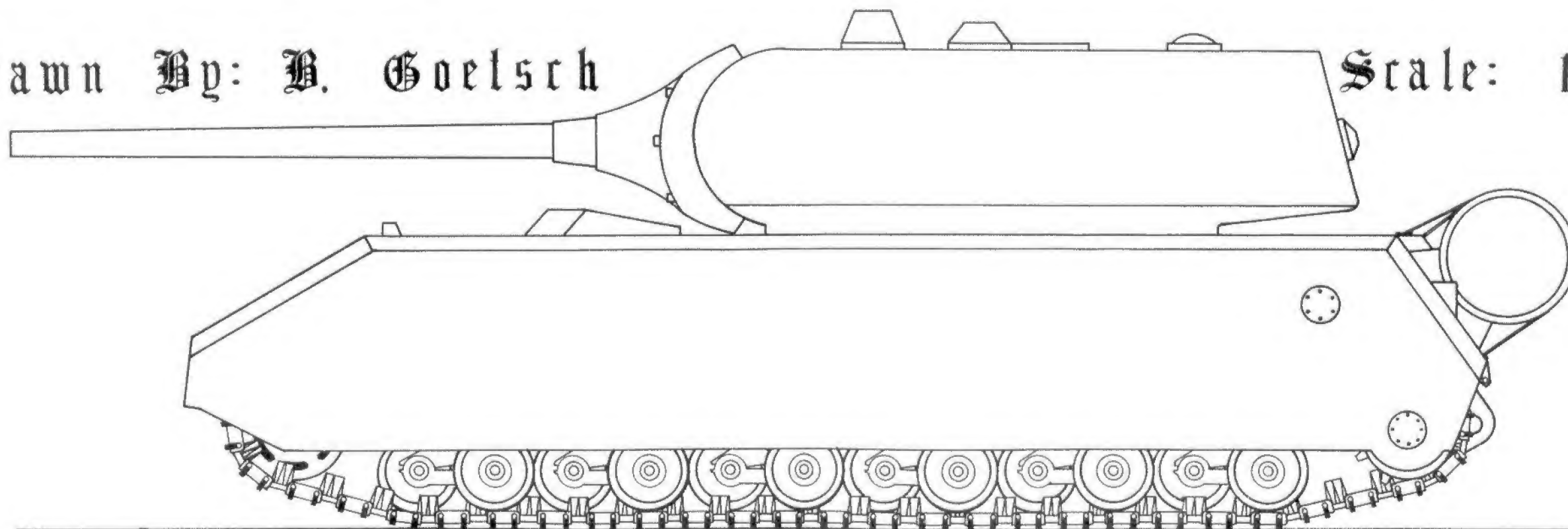
SU-100 Tank Destroyer
BA-40 Armored Car
BT-7 "Fast" Tank



Panzerkampfwagen "Maus" Versuchsgeraet, Ausfuehrung I

Drawn By: H. Goelsch

Scale: 1:32



Salerno;

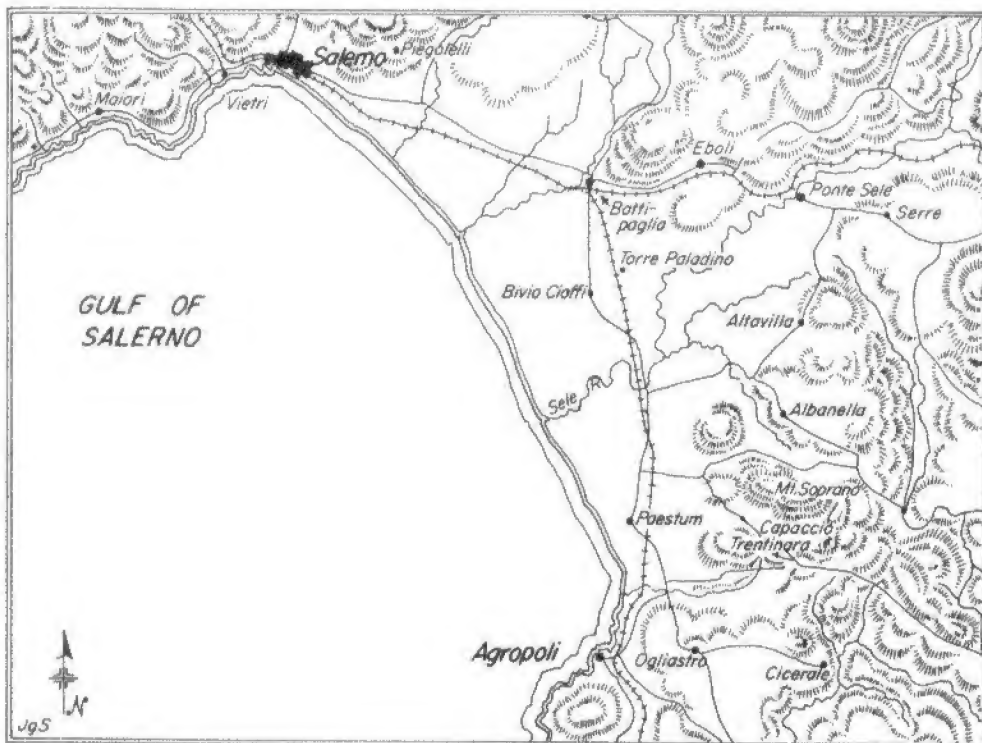
The American 36th Division's First Combat

by John G. Yonos

After Sicily was lost to the Allies, the Facist Italian government was changed. Allied Intelligence felt that an invasion of Italy itself would knock Italy out of the war, leaving Germany to fight on two fronts alone. For these reasons, on 3 September 1943, the British Eighth Army landed at Reggio di Calabria. That evening the Italian government surrendered unconditionally to the Allies. But the Germans still had about eight divisions in Italy, prepared to defend the country.

Another invasion of Italy was now planned near Naples. The British Eighth Army would attack up the east coast of the peninsula and the American Fifth Army, after landing near Naples, would drive up the west coast. South of Naples is an area known as the Salerno Plain, which derives its name from a town at the northern tip of the plain. The Salerno beach has a gentle slope down to the water, and landing craft could get in close to shore to unload. Also, air cover could be sustained for a longer time over the area from bases in Sicily. This Salerno Plain was defended by the 16th Panzer Division, a unit which was completing its combat training before returning to Russia.

Task forces from Tripoli, Bizerte, Oran, and Sicily rendezvoused off the Salerno Plain on the night of 8/9 September 1943; the Allied Fifth Army was poised for battle. The British 10 Corps landed three battalions of Rangers under Lt. Col. William O. Darby at Maiori and two battalions of Commandos under Brig. Gen. Lucky Laycock at Vietri sul Mare. The bulk of the British 10 Corps was landed south of the Picentino River and north of the Sele River; and the U. S. VI Corps landed to the South of the Sele River.



From a loudspeaker at Paestum, the American VI Corps heard in English "Come on in and give up. We have you covered. ". The 36th Division was to lead the American assault on the beach. The Germans had implaced Teller mines randomly on this beach starting 10 to 15 yards from the water to a depth of 60 to 100 yards inland. This was augmented by barbed wire. Numerous machine gun emplacements covered the obvious landing areas; these were supported by small groups of tanks and other heavy weapons. Artillery guns were emplaced so that they covered the entire beach. There was a German three-gun railway artillery battery mounting 132mm

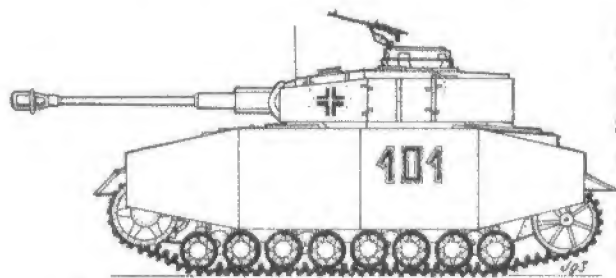
guns near Agropoli, which could shell the beach at will. The 1st and 3rd Battalions of the 141st Infantry Regiment and the 2nd and 3rd Battalions of the 142nd Infantry Regiment led the assault of the 36th Division on the Paestum beaches. The first troops landed at 0330 hrs. , and they immediately pushed inland. Both battalions of the 142nd were pinned down from time to time by machine gun fire and by snipers in the 50-foot Tower of Paestum, and other tall buildings in the town.

T/Sgt. Manuel Gonzales of Company F discovered an 88mm gun firing on the landing craft. Crawling thru machine gun fire, he killed the gun crew and set off their ammunition with his grenades.

The 3rd Battalion of the 141st was pinned down 300 yards from the water so heavily that the men could proceed only by crawling under the fire, and then only singly or in groups of two or three.

The 1st Battalion of the 141st met slightly less resistance with their first three waves, but subsequent waves had to land farther north. With the third wave came three self-propelled 75mm howitzers. However, one LCT carrying one of them turned back without getting to the shore and a second was destroyed by a mine after landing on the beach. The third succeeded in knocking out a machine gun emplacement and an enemy tank before its gunsight was damaged. While replacing the gunsight, the crew was knocked out by German machine gun fire. The 1st Battalion suddenly found itself surrounded and out of radio contact with any friendly units, but they continued to fight.

The Germans had almost every irrigation ditch and scrub brush patch zeroed in by machine guns. They would wait until fire or six men were in one place and then pour it on. Casualties mounted, and landing craft couldn't get to the shore to evacuate the wounded.



Pzkw. IV., Ausf. H of 16. Panzer-Division

The 2nd Battalion of the 141st landed behind and slightly north of the 3rd Battalion. With them came the Regimental Commander, Col. Richard J. Werner. He requested naval supporting fire through Ensign Alistair Semple, the naval gun fire observer. Ensign Semple could not contact the ships, as they were too far offshore.

Between 0530 and 0730, DUKW's brought in twelve 105mm howitzers of the 133rd Field Artillery Battalion. Each gun had been loaded on a DUKW with 21 rounds of ammunition and a gun section of seven men. Other DUKW's carried additional ammunition and the rest of the gun crews. Others were equipped with cranes to help unload the guns.

At 0555 hrs., the 151st Field Artillery Battalion arrived onshore in time to break up a German tank attack. At 0615, the first American tanks arrived on shore. The 531st Shore Engineers, veterans of Sicily and North Africa, started setting up dumps and making exit roads to the beach. First Lt. George Shumaker of Company D, 531st Shore Engineers, led a small group of his men in an attack on the enemy snipers in the Tower of Paestum. They not only destroyed the sniper posts and machine gun nests, but also drove off enemy tanks hidden behind the buildings. Tech. /5 Nolan Green and Pfc. Clarence Taylor operated their bulldozer on the beach until an 88mm shell hit the bulldozer, killing them both.

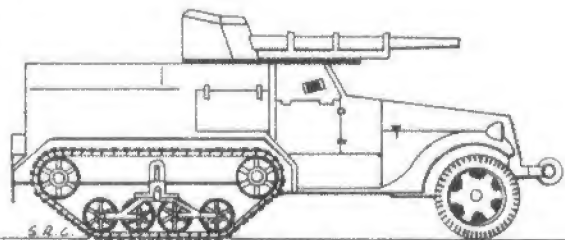
About 0700 hrs., German tanks began a series of attacks that continued for some time. Seven Panzer IV's of Panzer Regiment 2., 16. Panzer-Division, attacked the right flank of the 1st Battalion, 141st Infantry Regiment. Flying Column No. 2 of the 36th Cavalry Reconnaissance Troop, helped fight off this first attack. One Panzer IV was destroyed and the others withdrew.

At 0800, four Panzer IV's attacked the left flank of the 3rd Battalion, 142nd Infantry Regiment. This time, two 105mm howitzers helped drive the enemy off. Later, two tanks probed the center and were driven off by horizontal anti-aircraft fire. Mortar and bazooka fire forced yet another attacking group of Panzer IV's to withdraw.

Another probe was conducted against the 2nd Battalion, 141st Infantry, and Pvt. Manuel Gonzales, while closing in on a tank, was shot in the legs by a German machine gun. As he fell, one of the tanks ran over him and killed him. Pfc. Alfredo Ruiz closed in on a tank and exchanged fire with a crew member of the tank who was firing a machine pistol from the turret. Pfc. Ruiz was so close that when the tank pulled out he was dragged in the tank's camouflage of brush for about 10 yards.

Seven Panzer IV's attacked the 1st Battalion of the 141st Infantry again. Five of them went back and forth across Company D's position three times, firing their machine guns into the defensive positions. The other two caught a detachment of Company B in the open and inflicted heavy casualties on them.

About 1020 hrs., 13 Panzer IV's approached the 142nd Infantry's Command Post. A DUKW was coming up the road on the left flank of the Panzers, towing a 105mm howitzer, of the 151st Field Artillery Battalion. The gun crew saw the advancing tanks and immediately manned the gun. The howitzer was credited with shattering two of the enemy tanks; an A-36 fighter-bomber got one, and naval gun fire destroyed two more. The remaining eight tanks withdrew in some haste.



M3 (T-12) 75mm Gun Motor Carriage

Another attack by the Germans from the north occurred around 1145 hrs. Thirteen Panzer IV's came toward Casa Vannulo, where the 36th Division's Command Post was set up. The attack was broken up by bazooka teams from the 142nd and 143rd Infantry Regiments; a 75mm self-propelled howitzer of the Cannon Company, 143rd Infantry; two 105mm howitzers of the 151st Field Artillery; and a 37mm antitank gun of the 36th Cavalry Reconnaissance Troop. The 75mm crew claimed three enemy tanks, while the 37mm crew claimed two tanks destroyed at a range of 170 yards.

The American 191st Medium Tank Battalion arrived onshore in the afternoon of D-day and they moved up Highway 18 toward Ponte alla Scafa. The 645th Tank Destroyer Battalion landed and moved into a supporting position behind the 142nd Infantry. They broke up another German tank attack, destroying four Panzer IV's.

Sporadic fighting occurred throughout the night of 10/11 September, but was mostly infantry versus infantry. German Artillery continued to fire counter battery with the Allied ships and to fire on the beachhead of the American VI Corps. The 1st Battalion, 141st extricated itself from its situation (being surrounded) and slowly reorganized.

By dawn the "green" 36th Division, now veterans, still held the Beachhead for the VI Corps and the U.S. Fifth Army. The Allied landing was a success, and even though heavy German attacks loomed ahead, the Americans were becoming more confident.

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Wargame Review

Schizophrenic Wargaming

by Lonnie L. Gill

In Part I (Vol. II, No. 10), we devised a system for realistic wargaming which would encompass strategy as well as tactics, by playing on two levels. An Avalon-Hill board game is used as a basic campaign, while the battles between units are resolved on a three dimensional wargame board. Having set the basic relationship, we are now ready to look at some of the more sophisticated aspects of such a campaign—supply, the use of captured vehicles, and order of battle, etc.

Again, the rules are in numerical order for ease of reference. Rules 1 through 22 appeared in Part I of this article. Since they are written primarily for the armor wargamer, there are numerous changes from the original Avalon-Hill rules; and since you are wargaming on two levels, turns are designated as "Avalon-Hill" turns or "Wargame" turns. The examples refer to the use of the Avalon-Hill "Africa Korps" game and G.H.Q. "Micro Armor" miniatures.

23. Each unit must be resupplied during a wargame after it has used 10 "Wargame" (3D) turns of supplies. (This implies a wargame lasting more than one "Avalon Hill" turn.) Petrol (movement) and ammunition (firing) are considered separately.
24. Each unit will have a supply unit (represented in the miniatures game by 9 trucks). Each side will have one additional supply unit for use by any combat unit (GHQ Reserve).
25. If any vehicle or gun of a unit fires and/or moves, the entire unit is considered to have used up one "Wargame" turn of that type of supply. (E.G. Petrol or Ammo)
26. In order to be resupplied during a wargame, one must be able to trace a path of no more than 5 squares in length (on the A-H board) between the supply unit and the combat unit. If more than 5 squares away, supply must wait until the next A-H turn. A supply unit cannot pass through an enemy-held square but may pass through a friendly unit.
27. A unit is surrounded when there is no unobstructed supply path.
28. Each truck of the supply unit can supply 3 wargame vehicles with petrol and ammo.
29. If a unit is not engaged during consecutive A-H turns, it is considered to have been resupplied when next engaged, and starts with the full 10 wargame turns of supply. Thus, for a unit to start with full supplies, it must have been unengaged for at least one A-H turn.
30. "Captured" petrol may be used, but a unit must use ammo from a friendly supply unit. Any supply unit can supply any friendly combat unit.
31. Each side will set up 3 supply/vehicle-repair centers on the A-H board, and will note their A-H coordinates for the referee.
32. A supply unit may be used twice in each A-H "day". After being used the first time, the supply unit must close to within 5 A-H squares of a supply dump for at least one A-H turn before it is ready to supply a combat unit again.
33. A supply dump can be moved by two or more supply units. It takes one A-H turn to load up the supply dump.
34. Immobile units can stock up supplies and release their supply units for use by others, but they lose all extra supplies if they move their present square.
35. When a wargame is finished, 1/3 of all destroyed vehicles and guns can be recovered by the side having possession of the battlefield. Such recovery will take one A-H turn. As an alternative, any vehicle may be totally destroyed so that it cannot be used in the future.
36. Any vehicles recovered must be taken by a supply unit to a supply dump/vehicle recovery center.
37. One full A-H "day" (or "night") is needed to repair the destroyed vehicles.
38. When repaired, these vehicles can be added to the strength of an existing unit or made into a new unit. Be sure to note this on the order of battle.
39. Captured vehicles may be recovered and used, but you must have a captured truck to supply each captured vehicle with 10 wargame turns of ammo. If no truck is available, the vehicle can be used only until its ammo runs out. Example: A vehicle captured after 6 wargame turns

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could be fired during 4 turns by its new owners in a subsequent battle. Captured vehicles can use petrol from either side.

40. Vehicles damaged during a wargame may be repaired on the battlefield, if damage is of a temporary nature, or taken to a supply dump/vehicle repair center, if damage is of a permanent nature. Refer to the AFV-G2 firing table (Vol. II, No. 7) for distinction as to the types of damage that a vehicle may suffer.
41. If a unit enters a square containing a minefield which is unoccupied by the enemy, it must take one A-H turn to clear a path through the minefield. If not cleared, the unit may pass through the minefield square suffering damages as per normal wargame rules for mines. If the minefield square is occupied by the enemy, a battle of course, results.
42. Each A-H unit marker will represent one British or German brigade/regiment or Italian Division. Obviously, you will need to make some new A-H markers as some of the present ones represent units which are much too large and have "combat factors" which cannot be justified in an objective comparison of strength.
43. Each unit will be represented on the wargame board by 1/10 of its actual strength in guns and vehicles. Obviously, here, you must research a campaign thoroughly before attempting to re-create it.
44. No more than three units of the same side may occupy one A-H square (stacking rule), exclusive of supply units.
45. Before a campaign is started, each side will have an official order of battle listing units and strengths which will be available to the referee. This order of battle will be updated to represent losses and transfers of equipment between units.
46. Optional rule: If desired, the A-H "day" may be extended to include one "night" turn. During this turn, each unit may move one A-H square even if it had already reached its daily total. No combat will result if opposing units move into the same square (poor visibility); but these units will engage on the first turn of the next A-H "day".

(Continued on Page 29)

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New From "GHQ"

by Norb Meyer

G19 Panther: The detail on this new item is absolutely superb. This is the 'G' version of the famous Panther and comes complete with the side rail for attachment of the skirt armor. This addition is a minor conversion and looks very nice. Micro-Bocage anyone? \$2.45 for 5.

G21 Lorraine Schlepper: (150mm SP) GHQ has out done themselves on this interesting adaptation of their Lorraine troop carrier. Detail and size comparisons appear to be accurate. This vehicle saw service in North Africa, Russia and France (1944) so it would be a nice addition to any miniature 'Kampgruppe'. \$1.95 for 5.

G20 Wespe: (105mm SP) What SP batteries would be complete without this little beauty? This vehicle saw service from 1942 until 1944, with 683 being built. GHQ certainly does the vehicle justice in their reproduction. You must see this one to really appreciate the detail. \$1.95 for 5.

G22 Panzer IV F2: At long last, the Germans are getting some heavy and medium equipment. This version appears to be the 'G' version but in this scale who can tell? Why not get a few and try a conversion or two with the side skirts and horseshoe armor? \$2.45 for 5.

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BOOK REVIEW: U. S. Military Vehicles World War 2 by E. J. Hoffschmidt
and W. H. Tatum IV, (WE Inc., Old Greenwich,
Connecticut, 156 pages, \$8.95)

Jim Garrison

Hoffschmidt and Tatum have struck again. The latest book from the reprinting press of "WE" is solely concerned with American military vehicles, as the title indicated. This book will be as important to American armor buffs as Tank Data was to all armor data collectors when it appeared four years ago. The information contained in this large format book will additionally be a great help to data collectors and wargamers.

Some of the most helpful information contained in this book is that covering support vehicles. Detailed data is given for bicycles, scooters, motorcycles, trucks, jeeps, tractors, tank transporters, trailers, cargo carriers and much more. The book also contains very informative sections on fording equipment, tank engines and other related subjects. Each piece of equipment that is described is also illustrated with at least one, if not more photos, and this alone is a great help to the modeler.

By the above comments, I don't mean to imply that AFVs are not given their proper coverage. Indeed not: in terms of data, no previous book has ever given American fighting vehicles this kind of coverage. Except for a few minor exceptions, all AFVs used by the U.S. Army are covered, along with the major experimental models. As a matter of fact, some vehicles are covered twice.

Perhaps the worst thing you could say about this book is that it fills in the gaps left by Charnberlin and Ellis's British and American Tanks of World War II. By having both of these books, the only thing left to hope for, for those interested in the U.S. Army is equal coverage of artillery and small arms. Needless to say, this book is a must for those interested in the "good guys".

Books such as this one and "Tanks" Are Mighty Fine Things are what keep the armor hobby alive, and "WE" should be supported. Who knows, perhaps some day they will even reprint Ruth Conger's primer; American Tanks and Tank Destroyers.

British Stuart Tank Squadron 1942

by Bill Platz

July 1941, and the port of Suez shimmered in the heat, as sweating longshoremen lowered a number of awkward looking contraptions onto the quay. These were the new American tanks sent to bolster the tank strength of the British 8th Army. British tank losses had been heavy in the retreat from Mersa Brega to the Egyptian frontier, and in the two abortive offensives - "Brevitz" and "Battleaxe" that attempted to relieve the isolated Fortress of Tobruk.

The first units to receive the new tanks were the Armoured Regiments of 4th Armoured Brigade - 8th Hussars, 3rd RTR and 5th RTR; and these had been equipped with their complement of 52 tanks each by August 1941.

At this time a British Tank Squadron had an authorized strength of 14 Cruiser tanks and 2 Close Support tanks (A-9 Cruisers with a 3.7" Howitzer instead of the usual 2 pdr.); however, with the arrival of the Stuarts, this organization was modified to 16 M-3's, organized into three troops of 4 tanks each, and a Squadron Headquarters of 4 more Stuarts. The Squadron was commanded by a Major, with a Captain as second-in-command, and Lieutenants as troop commanders.

Service and supply functions were handled by the Regimental or Battalion Headquarters (the two terms are practically synonymous in British usage), leaving the squadron unencumbered during combat. The Armoured Regiment at this time had an authorized strength of 31 officers and 546 Other Ranks; and, in addition to the three "Sabre" Squadron, had a tactical H.Q. with 4 M-3's, Administration, Supply, and Technical troops; a Light Aid Detachment of REME personnel; a Medical officer with his staff, and a Chaplain.

During November and December 1941, 4th Armoured Brigade, whose three regiments were entirely equipped with Stuarts, engaged in the seemingly endless tank duels that characterized operation "Crusader", and from that time on it was a rare unit that managed to keep all of its full complement of 16 machines operational at the same time. Indeed some "squadrons" were operating with 4 tanks or less during the battle, while others replaced their vehicles several times over. By the 23rd of December, 4th Armoured Brigade had returned to Egypt, impressed with the speed and reliability of their new tanks, but disappointed about the 37mm "Popgun".

The Stuart remained in Service with the British Forces after the appearance of the Grant, with its 75mm gun, and it took part in the Gazala Battles and the defense of the Alamein line. Here, a Stuart Squadron was combined with two Squadrons of Grants to form the armoured regiments of 1st, 4th, 8th and 9th Armoured Brigade Groups. However, with the arrival of the Sherman during the summer of 1942, the role of the Stuart as a main battle-tank was coming to an end. At the Battle of El Alamein, there were 167 Stuarts on the 8th Army rolls, but only 133 of these were with Armoured Regiments (including 29 with 2nd New Zealand Divisional Cavalry Regiment). By 1943, the Stuarts had been relegated to the Reconnaissance role, and the Stuart "Sabre" Squadrons were a thing of the past. (War Establishment 11/101/3 of 30 Nov 43 provided for a troop of 11 light tanks (M-5 Stuarts) and 6 AA tanks to be attached to the HQ squadron of each British Armoured Regt.)

Regiment	Crusader	Gazala	Alamein
1st Royal Tank Regt.	-	1	1
3rd Royal Tank Regt.	3 (A,B,C,)	1 (A)	-
5th Royal Tank Regt.	3 (A,B,C,)	1 (A)	1
6th Royal Tank Regt.	-	1	-
3rd Hussars	-	1 Note ¹	-
4th Hussars	-	1	1 (B)(48) Note ²
8th Hussars	3 (A,B,C,)	1 (C)	2 (A and C) Note ²
Royal Wiltshire Yeomanry	-	1	-
Nottinghamshire Yeomanry	-	1	-
Staffordshire Yeomanry	-	1	-
Warwickshire Yeomanry	-	1	-
Royal Scots Greys	-	1	1

Note¹: These units were in the process of re-equipping during the time of the Gazala actions. During the battle those tanks which had been received by them were sent forward as replacements to the other units.

Note²: In June 1942, after heavy losses, the 4th and 8th Hussars were combined into a composite regiment referred to as 4-8 Hussars. At the time of Alamein, B Squadron of the 4-8th was composed of personnel from the 4th, while the other two squadrons were primarily taken from the 8th.

BRITISH STUART TANK

SQUADRON 1941-42

SQUADRON HEADQUARTERS



1 NCO Commander
1 OR Driver
1 OR Radio Oper.
1 OR Gunner



1 NCO Commander
1 OR Driver
1 OR Radio Oper.
1 OR Gunner



1 Capt. 2nd in Comm.
1 OR Driver
1 OR Radio Oper.
1 OR Gunner



1 Major SQDN. C.O.
1 OR Driver
1 OR Radio Oper.
1 OR Gunner

FIRST TROOP



1 Corporal/Comm.
1 OR Driver
1 OR Radio Oper.
1 OR Gunner



1 Corporal/Comm.
1 OR Driver
1 OR Radio Oper.
1 OR Gunner



1 Troop Sergeant
1 OR Driver
1 OR Radio Oper.
1 OR Gunner



1 Lt. Troop C.O.
1 OR Driver
1 OR Radio Oper.
1 OR Gunner

SECOND TROOP



1 Corporal/Comm.
1 OR Driver
1 OR Radio Oper.
1 OR Gunner



1 Corporal/Comm.
1 OR Driver
1 OR Radio Oper.
1 OR Gunner



1 Troop Sergeant
1 OR Driver
1 OR Radio Oper.
1 OR Gunner



1 Lt. Troop C.O.
1 OR Driver
1 OR Radio Oper.
1 OR Gunner

THIRD TROOP



1 Corporal/Comm.
1 OR Driver
1 OR Radio Oper.
1 OR Gunner



1 Corporal/Comm.
1 OR Driver
1 OR Radio Oper.
1 OR Gunner



1 Troop Sergeant
1 OR Driver
1 OR Radio Oper.
1 OR Gunner



1 Lt. Troop C.O.
1 OR Driver
1 OR Radio Oper.
1 OR Gunner

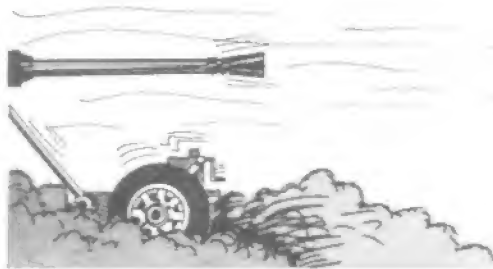


The 7.62cm Russian Pak 36(r), mounted on the German 5-ton Halftrack

by Jim Steuard

In an effort to improve their mobile anti-tank gun shortage, the German troops of the "Deutsches-Afrikakorps" (DAK) resorted to a number of ruses and field modifications. One of these modifications resulted in the "strange" contraption pictured above. (This vehicle was also the subject of our cover illustration in Volume 1, Number 12) The Allies captured their first examples of this vehicle/weapon during August-September 1942, in a local fight. The captured piece was transported to Cairo, where it was well photographed and examined by technical intelligence personnel. The gun was one of the excellent towed Russian 7.62cm guns, described in the January issue of "AFV-G2". It was unmodified; firing the original short cased Russian ammunition. The wheels were removed from the towed gun, and the weapon was welded in position on the available chassis of the Sd. Kfz. 6, 5-ton unarmored halftrack. The split rails of the towed gun were cut down, so that the weapon would better fit on the chassis. This conversion work was evidently done in mobile workshops of the DAK in operation near Benghazi. "Armor" plate was removed from ships sunk in the harbor by the R.A.F.; these crude armor plates were welded around the gun to give some form of protection to the gun crew. The high silhouette of the vehicle made concealment difficult, and the restricted traverse of the converted field gun on the chassis limited its usefulness. However, the gun evidently assisted in increasing mobile anti-tank gun protection so badly needed by the DAK. It is evident that few of these conversions were made by the Germans; and this modification was definitely unusual and rare.

(Photo above is courtesy of Aberdeen Proving Ground Museum)



"On To Bizerte"

by Charles Jones



The entry into Bizerte, Tunisia, in 1943 was heralded by newsreels, magazine and newspaper accounts - each of which gave its own version of who first entered the city. However, none of these reports were accurate. In actual fact the first Allied unit to enter Bizerte, after the evacuation of the Afrika Korps, was my own 40mm Bofors gun crew!

Of course, we were not meant to enter at the time we did. No doubt the orders came from the Divisional Commander, who, in some haste, said, "Move the available units of IV Corps and take up position in Bizerte. "Our Regimental Commander, wishing to prove how sharply he could "get the show on the road", gave the orders to our Battery Commander to "Get those guns rolling." And off we went.

The gun detachments of a Light AA Battery normally travel in alpha-numerical order - A-I then A-II, etc. My crew happened to be A-III; and, travelling in the proper order, would have entered the town following the two preceeding guns. However, everyone was tremendously excited, and we were told to get in as quickly as possible. The scene looked somewhat like a chariot race, with the trucks going "flat out" toward the entrance of the town, and we won easily -- our G. T. V. (gun towing vehicle) giving its best performance so far, a magnificent 65 mph, with the 40 mm gun bouncing like crazy behind.

The town appeared quiet and peaceful as we entered the main street; but we did not slacken speed. Suddenly we found ourselves the ideal target for many German snipers hiding in the houses and buildings. Perhaps we had surprised them somewhat, because none of their fire was directed into the driver's cab, but ripped through the tarpaulin cover of our vehicle where my gun crew was seated in two neat rows. Fortunately, apart from a few scratches and minor bruises from "hitting the dirt," no one was wounded. In fact, we were all laughing like crazy people, as we made that mad dash through town. Since that time, I have often wondered what we had to laugh about!

About two miles out of town, we stopped and took up the position assigned to us by map reference and prepared to "dig in." The reader must not take this phrase too literally, as I can assure you we really only scratched the surface of the barren land which we occupied.

While in position, and waiting for the opportunity to open fire, we were most surprised to hear someone calling to us in French, "Bien venu, bien venu. Les Anglais". An elderly French lady had approached us from the rear, on her bicycle, without us being aware of her presence. We, the trained vigilant soldiers, felt rather sheepish that someone had approached us so easily; however, we quickly overcame our surprise, and chatted happily to her in our terrible French.

In our position we felt reasonably safe, but only for a short time. A German field piece across Bizerte harbor soon calculated our position, and very rapidly its 88 mm shells straddled our gun location - shrapnel and dirt flew in all directions.

However, again fortune smiled on us all, and we suffered no casualties, nor did the gun receive a direct hit. Mind you, no one could have mistaken us for heroes at that time, as we all lay flat on our faces behind the armor protection plate of the gun!

Our entry into Bizerte had begun at 6 a.m. that morning. We remained in position until five p.m., doing absolutely nothing but shielding ourselves from shrapnel and ricochets. . . not even able to make a cup of tea!

Gradually the shell fire subsided (I suspect due to their shortage of ammunition); and we evacuated Bizerte at the first shades of evening. Racing again through the downtown streets, we made our way to the rest area where our Headquarters staff lay comfortably well-fed listening to "The Chatanooga Choo Choo".

As mentioned in the beginning of this article, the newsreels presented different accounts of the first entry into Bizerte; to our amazement we saw pictures of beautiful French girls kissing the liberating Allied soldiers, as they entered the various parts of the town. Now I must admit the elderly French lady we saw was quite charming, but beautiful. . . no. And she was quite alone!

The creation of a viable set of rules for playing wargames with armor miniatures, rules such as those featured in this magazine. The International Wargamer and the other wargaming publications here and abroad, are but the first step to the goal of games that are both interesting and enjoyable. The creation of a good game is an art that combines skill, experience, forces and situation into an entertaining SIMULATION - an enjoyable challenge.

The following game is from a situation used by the University of Illinois Armor Miniatures Association, and you should find it interesting when played by your own wargaming group. The forces involved are as follows:

AMERICAN:

- 6 M-4 Sherman Medium tanks (75mm gun) with indirect fire capability.
- 2 M-8 Armored Cars (37mm gun)
- 1 3 in. Anti-Tank Gun (towed)
- 1 infantry Platoon with 18 riflemen, 6 SMG, 2 HMG (.50 cal.), 6 LMG (.30 cal)
- 1 81mm Mortar, 2 Forward Observers, and 5 2 1/2 ton Trucks

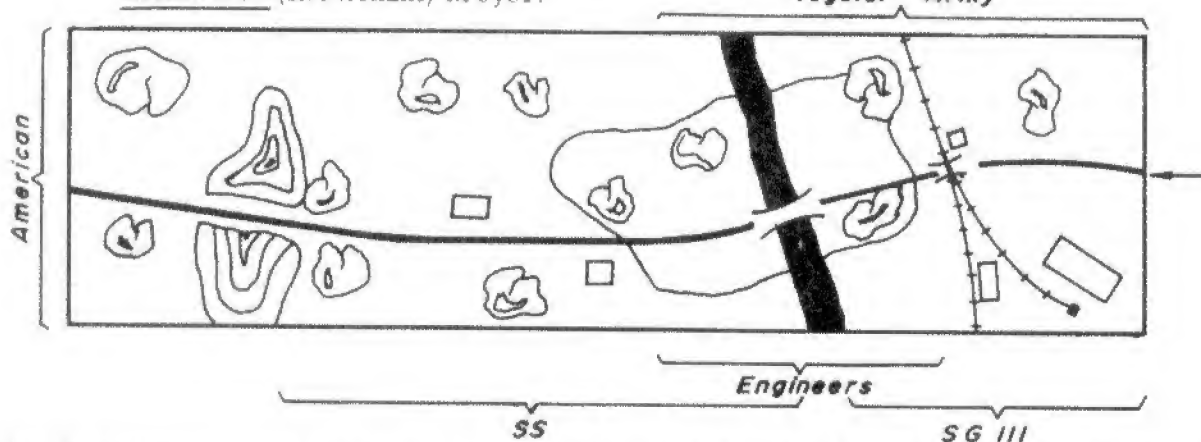
GERMAN

Regular Army: 1 Stgz. III (with indirect fire capability), 1 infantry Platoon with 10 Riflemen, 1 HMG, 2 LMG, 1 81mm Mortar and 2 Forward Observers. This unit commanded by a Major.

Engineers: 1 Sdkfz. 251 Half-track, 1 Truck with demolition equipment, 2 LMG 6 Riflemen, 1 Radio operator, and 8 Pioneers (German Engineers) under a Major.

SS Panzer Gruppe: 1 PAK 36(r) 76.2mm Anti-Tank Gun (trailed), 2 motorcycles, 2 Panzerfausten, 2 LMG, 8 SMG, 1 Forward Observer and 1 Tiger I.

(The Tiger does not arrive until Turn 8) The unit is commanded by Untersturmbannführer (Lieutenant) Meyer.



The German force is a rearguard charged with the responsibility of destroying the bridge to prevent its capture. The American task is obviously to take the bridge intact, and hold it for the advancing Allied forces - a common situation in the 1944 drive across Europe.

In order for the Germans to blow the bridge, the engineers must first prepare the charges - a tedious task that requires 8 turns to complete unless they are under fire. When being shot at, the engineers must roll a die to find enough courage to climb out onto the bridge to finish the job. A roll of "1" or "2" will mean the award of an Iron Cross and one less turn required to finish the wiring. (If all the Pioneers are killed before the charges are set then the bridge cannot be blown.) When all the charges are set then the Germans must move one man 6 inches from the bridge, trailing the wires and the structure may be demolished on the next turn. Both sides are racing against time...have fun!

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PANZER ARMEE AFRIKA

1. XXX Corps
 - a) 1st Armd Div
 - 1) 2nd Armd Bdge(4 Grants, 12 Crusaders)
 - 2) 22nd " " (4 Grants, 12 Crusaders)
 - 3) 201 Guards Bdge(4-6lbers, 4-25lbers)
 - b) 7th Armd Div
 - 1) 4th Armd Bdge (8 Grants, 8 Stuarts)
 - 2) 7th Motor Bdge (4-6lbers, 5-25lbers)
 - 3) 3rd IndianMotorBdge(3-2lbers,3-25lbers)
 - c) Free French Bdge (Bir Hakiem) (4-2lbers, 4-25lbers)
 - d) Recce
 - 1) 4th SAAC (4 Arm Cars)
 - 2) 11th Hussars (4 Arm Cars)
 - 3) 12th Lancers (r Arm Cars)
2. XIII Corps
 - a) 1st South African Div
 - 1) 1st Bdge(3-2lbers, 3-25lbers, 2 Matildas)
 - 2) 2nd Bdge(3-2lbers, 3-25lbers, 2Matildas)
 - 3) 3rd Bdge(3-2lbers, 3-25lbers, 2Matildas)
 - b) 50th Div
 - 1) 150th Bdge (3-2 lbers, 2-6 lbers, 4-25 lbers, 2 Matildas)
 - 2) 151 Bdge (3-2 lbers, 4-25 lbers, 2 Matildas)
 - 3) 69 Bdge(3-2lbers, 4-25 lbers, 2 Matildas)
 - c) 5th Indian Div
 - 1) 29th Ind Bdge (3-2 lbers, 3-25 lbers)
 - 2) 10th Ind Bdge (3-2 lbers, 3-25 lbers)
 - d) 1st Army Tk Bdge (15 Matildas)
3. Tobruk Fortress
 - a) 9th Indian Bdge (3-2 lbers, 3-25 lbers)
 - b) 2nd S.A. Div (6-2 lbers, 3-25 lbers)

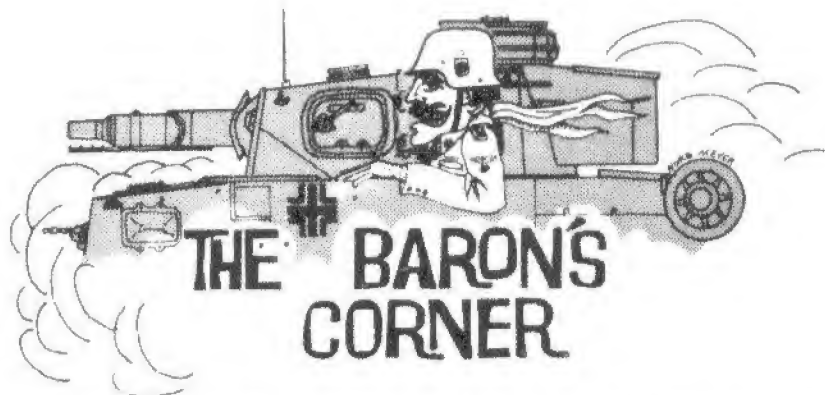
1. D.A.K.
 - a) 15th Pz Div
 - 1) 8th PzRgt (3 Pz II, 12 Pz III, 2 Pz IV)
 - 2) 15th PzGRgt (5-5cm Pak, 5 Sd.Kfz 251)
 - 3) 33rd Artillery Rgt(3-105mm, 1-150mm)
 - b) 21st Pz Div
 - 1) 5th Pz Rgt(3 Pz II, 12 Pz III, 2 Pz IV)
 - 2) 104th PzGRgt (5-5cm Pak, 5 Sd.Kfz 251)
 - 3) 155th Artillery Rgt(3-105mm, 1-150mm)
 - c) Artillery Group 104(2-105mm, 4-150mm, 6 Italian 150mm)
 - d) Recon
 - 1) AA3(2-Sd. Kfz. 222, 2-Sd. Kfz. 231, 1-Pz. Jag. I, 1-Sd. Kfz. 250)
 - 2) AA33(2-Sd. Kfz. 222, 2-Sd. Kfz. 231, 1-Pz. Jag. I, 1-Sd. Kfz. 250)
 - 3) AA580(2-Sd. Kfz. 222, 2-Sd. Kfz. 231, 1 Marder II, 1-Sd. Kfz. 251)
 - e) Flak (5-88Flak, 6-Sd. Kfz. 251)
2. XX Mobile Corps
 - a) Ariete(22-M13/40, 4-47mmAT, 4-105mm)
 - b) Trieste (4-47mmAT, 4-105mm)
3. 90th Light Division
 - a) 361 Rgt (3-5cm Pak, 3-Sd. Kfz. 251)
 - b) 155 Rgt (3-5cm Pak, 3-Sd. Kfz. 251)
 - c) 200 Rgt (3-5cm Pak, 3-Sd. Kfz. 251)
 - d) Artillery (4-105mm)
4. X Corps
 - a) Brescia (3-47mmAT, 3-105mm)
 - b) Pavia (3-47mmAT, 3-105mm)
5. XXI Corps
 - a) Sabratha (3-47mmAT, 3-105mm)
 - b) Trento (3-47mmAT, 3-105mm)

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Tips on Mixing Paints

by Norb Meyer

The subject of the "Corner" this month is the method for mixing of paints, so as to obtain the correct color without wasting whole bottles of expensive paint. Before we launch ourselves into mixing, we should first discuss our first choice in paints: those made by the Floquil Company. At the risk of sounding like praising Floquil paints over other brands, we must say that there are several distinct advantages in using Floquil. First of all, the Floquil colors are "constant"; whereas some other brands vary from batch to batch. This is not intended to "knock" other brands but in spite of their quality control, there are shade differences once in a while. These differences are acceptable to most modelers, but if one is striving for complete accuracy, and wants the colors to be the same shade all the time, then a little variation can mean the difference between an authentic model and a ruined paint finish. The next advantage to Floquil is the fact that the paint is nice and thin; therefore it requires little or no thinning for airbrushing. Yet, it gives good coverage, and if not put on too heavily, it will dry almost immediately (in dry climates). How often have you painted a model, and then picked it up to put it away for safekeeping, and have left a nice big fingerprint on the thing? Add to all of these advantages the fact that Floquil will cover well when applied with a brush, and not obscure detail in the smaller scales. It should be pointed out though, that plastic models should be painted with a base coat of paint, if the final coats are to be brushed. This base coat should be sprayed on, and Floquil is available in spray cans for this purpose. Another advantage to Floquil paints is that once the painted model has set for a week, the paint is now really "set". Other detailing can be applied over the paint without having to worry about the undercoat contaminating the detailing paint. Floquil paints seem to etch the plastic slightly, and this makes the paint adhere far better. This etching, incidently, is the main reason for the base coat in brush applications.

Before we proceed to the actual mixing of paints, a word is necessary on the tools that are needed. The first tool that is needed is for transferring paint from one bottle to another, and being able to transfer the same amount each time. An eye dropper is best for this sort of thing; these are easily obtained from a drug store for about a nickel apiece. Test tubes might also be a good idea, with a scribed line on them for accurately measuring equal parts. It is a good idea to have this instrument, whatever it is, made out of glass, since glass will clean with thinner, not leaving residue. Thinner is the next tool you will need; for Floquil paints, the "Di-Sol" that they manufacture is a very good solvent, and cleans everything nicely. The next tools that you will need are mixing bottles; these can be obtained from the hobby shop near you that carries Floquil paint. They cost \$1.00 for a package of six. The final thing that we would recommend is fresh paint, as any paint that has gotten old will not mix well. Floquil paints tend to keep fresh longer than other paints that we have tried; still it is a good idea to have fresh paints available. Incidently, a roll of paper towels and a package of pipe cleaners will be very helpful in cleaning any mess.

Now comes the "fun" part. Once you have assembled the above "goodies" it is time to start on the actual mixing. Let us theorize that we are mixing the "Olive Drab" given in a previous issue; the mix is 5 parts of black, 3 parts of yellow, and 1 part of red. Take the eyedropper and siphon out the black paint from the paint bottle, working with drops, and counting them in multiples of five. Now, clean the eyedropper (otherwise you will contaminate the other paints). Using the same method as with the black paint, measure the yellow and transfer it to the mixing bottle holding the black paint. This time, work in the same number of multiples of three. Now add the red in multiples of one, cleaning the eyedropper before application. (For example, 25 drops of black (5x5), 15 drops of yellow (5x3), and 5 parts of red (5x1)). Add some thinner (to help mix the paint pigment) and cap the bottles tightly. Shake the bottle well; about a minute and a half should be sufficient. Sometimes it helps to slap the bottom of the bottle against the palm of your hand. Once the paint has been mixed, the painting fun can begin.....

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